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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/899,927	07/09/2001	Fred Judson Heinzmann	13222.00045	4522

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PATENT ADMINISTRATOR
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EXAMINER	
SOBUTKA, PHILIP	

ART UNIT	PAPER NUMBER
2618	

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/899,927	HEINZMANN, FRED JUDSON	
	Examiner	Art Unit	
	Philip J. Sobutka	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *29-38* is/are pending in the application.

4a) Of the above claim(s) ____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *29-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 29-32,34,36,37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barabash (US 6.606,059) in view of Taqi et al (An Experimental Investigation of a Short Backfire Antenna with Electromagnetic Coupled Patch as Feed Element; Journal of Islamic Academy of Sciences; Vol. 8, No. 2) and in view of Sole (US 6,150,987).

Consider claim 29. Barabash teaches an antenna for a wireless local loop subscriber station (Barabash see especially col 1, lines 12-18, col 9, lines 15-20) comprising: a connecting means for attaching said antenna to a radio of said subscriber station (Barabash figs 4A, 5, item 134, col 6, lines 26-27 and figs 7A,B, item 234, col 8, lines 41-45); a plurality of directional antennas each defining a different sector of coverage for said antenna, each of said directional antennas being switch able in relation to each other such that said antenna transceives a radio link in said direction (Barabash figs 3A-C, col 4, lines 15-30, and fig 5, col 7, lines 19-65). Note that Barabash teaches that the antennas are Patch antennas steered to achieve a desire quality (Barabash fig 7A,B, col 8, lines 21-46, figs 4A-C, col 5, lines 35-55). Barabash lacks a teaching of the patch antennas having a coupled patch configuration. Taqi teaches that the use of coupled patch configuration provides improved radiation pattern, gain, and bandwidth (Taqi see especially page 1, Summary, page 3, para. 4, page 4, conclusion). It would have been obvious to one of ordinary skill in the art to modify Barabash's patch antennas to use the coupled patch arrangement taught by Taqi in order to provide improved radiation pattern, gain, and bandwidth.

Barabash also lacks a teaching of determining a direction for the antenna that provides the best quality link.

Sole teaches an antenna for a wireless local loop subscriber station (Sole see column 1, lines 25-40) comprising: a connecting means for attaching said antenna to a radio of said subscriber station (Sole see figures 1, 7 column 3, lines 18-26); a plurality of directional antennas each defining a different sector of coverage for said antenna, each of said directional antennas being switch able in relation to each other such that said antenna transceives a radio link in said direction (Sole see especially figure 7, column 4, lines 28-35, column 5, line 60 – column 6, line 4). Sole teaches a means for switching the antenna in a direction that achieves a desired quality by determining an appropriate time to orient the antennas (Sole see column 5, lines 38-60), illuminating the antenna in an orientation (Sole, see especially figure 6, and column 4, line 65 – column 5 line 20. Note that when Sole rotates the beam across an arc all orientations in the arc would be illuminated.), measuring the transception quality of a wireless link in the orientation (sole column 5, lines 1-10), repeating the illuminating step until a desired number of orientations have been illuminated (Sole, see especially figure 6, and column 4, line 65 – column 5 line 20. Note that Sole would repeat the search until the entire search arc had been illuminated) and orienting the antenna towards the one orientation that has the desired quality (Sole see column 5, lines 18-32).

It would have been obvious to one of ordinary skill in the art to modify Barabash to use the method of pointing as taught by Sole in order to ensure that the best direction for a quality link was being used.

As to claim 30, Barabash teaches that the steerable antenna includes four directional antennas at an angle of ninety degrees to the other, each of the directional antennas having a coupled patch configuration (Barabash fig 7A,B, col 8, lines 21-46, figs 4A-C, col 5, lines 35-55).

As to claim 31, Barabash teaches that the antenna's coupled patch configuration includes a plurality of sub-elements (Barabash fig 9, col 9, lines 30-35).

As to claim 32, note that Barabash teaches that the antennas are Patch antennas steered to achieve a desire quality (Barabash fig 7A,B, col 8, lines 21-46, figs 4A-C, col 5, lines 35-55).

As to claim 34, Barabash teaches the antenna wherein the subscriber station includes at least one steerable antenna able to be oriented in both horizontal and vertical planes (Barabash see especially fig 14, col 11, lines 30-43).

As to claim 36, and 37, Barabash teaches the antenna wherein said subscriber service includes voice and/or data service and said subscriber terminal is a voice and/or data terminal (Barabash see especially col 3, lines 15-20).

2. Claims 33,38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barabash in view of Taqi and in view of Sole and further in view of Reudink et al (US 2004/0235527).

Consider claim 33, Barabash in view of Taqi and in view of Sole teaches everything claimed as shown above except wherein one of said directional antennas is selectively used for an uplink portion of said link and another of said directional antennas is selectively used for a downlink portion of said link, each of said directional

antennas being selected according to a desired transmission-quality of said uplink and a desired reception-quality of said downlink. Reudink teaches a system in which one antenna is selected from an array for uplink and another for downlink based on signal quality (Reudink figs 1, 5, para. 50). Reudink teaches this method allows for high data rate while allowing efficient reuse of frequencies (Reudink para. 48). It would have been obvious to one of ordinary skill in the art to modify Barabash in view of Taqi and in view of Sole to select one antenna for uplink and another for downlink as taught by Reudink in order to allow for high data rate while allowing efficient reuse of frequencies.

As to claim 38, Barabash in view of Taqi and in view of Sole teaches everything claimed as shown above except for the wireless link being based on CDMA. Reudink teaches that use of CDMA allows for code sharing of a single resource among multiple users (Reudink para. 52). It would have been obvious to one of ordinary skill in the art to modify Barabash in view of Taqi and in view of Sole to use CDMA as taught by Reudink in order to allow for code sharing of a single resource among multiple users.

3. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barabash in view of Taqi and in view of Sole in view of Westfall et al (US 6,014,114).

4. Consider claim 35. Barabash in view of Taqi and in view of Sole teaches everything claimed except for each of the sub-elements including a substantially octagonal outer-patch and a substantially octagonal inner-patch, said outer patch serving as a parasitic element to its said respective inner patch. Westfall teaches a patch antenna which includes a substantially octagonal outer-patch and a substantially octagonal inner-patch, said outer patch serving as a parasitic element to its said

respective inner patch (Westfall col 3, lines 33-41). Westfall teaches that this arrangement allows for an antenna structure that reduces multi-path while being very lightweight. It would have been obvious to one of ordinary skill in the art to modify Barabash in view of Taqi and in view of Sole's antenna to use the structure of Westfall in order to provide an antenna that reduces multi-path while being very lightweight, which would be advantageous in the nomadic arrangement of Barabash.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip J Sobutka whose telephone number is 571-272-7887. The examiner can normally be reached Monday through Friday from 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on 571-272-4711.

6. The central fax phone number for the Office is 571-273-8300.

Most facsimile-transmitted patent application related correspondence is required to be sent to the Central FAX Number.

CENTRALIZED DELIVERY POLICY: For patent related correspondence, hand carry deliveries must be made to the Customer Service Window (now located at the Randolph Building, 401 Dulany Street, Alexandria, VA 22314), and facsimile transmissions must be sent to the Central FAX number, unless an exception applies. For example, if the examiner has rejected claims in a regular U.S. patent application, and the reply to the examiner's Office action is desired to be transmitted by facsimile rather than mailed, the reply must be sent to the Central FAX Number.

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

8/4/0

Philip J Sobutka

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PHILIP J. SOBUTKA
PATENT EXAMINER